

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

#

PCTNOTIFICATION OF TRANSMITTAL OF
INTERNATIONAL PRELIMINARY
EXAMINATION REPORT

(PCT Rule 71.1)

Applicant's or agent's file reference #		Date of mailing (day/month/year)		#
		IMPORTANT NOTIFICATION		
International application No. #	International filing date (day/month/year) #	Priority date (day/month/year) #		
Applicant #				

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.
4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.



The Applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purpose of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purpose of deciding whether, in that State, the claimed invention is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the IPEA

Authorized officer:

Form PCT/IPEA/416 (January 2004)

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PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or Agent's file reference	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP 03/50882	International filing date (day/month/year) 24.11.2003	Priority date (day/month/year) 20.11.2002
International Patent Classification (IPC) or national classification and IPC G02F 1/35		
Applicant THALES		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 7 sheets including this title page.
- ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and instruction 607 of Administrative Instructions of the PCT).

These annexes consist of a total of 4 sheets.

3. This report contains indications relating to the following items:
- I ☒ Basis of the report
 - II ☐ Priority
 - III ☒ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV ☐ Lack of unity of invention
 - V ☒ Reasoned statement according to Rule 66.2(a)(II) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - VI ☐ Certain documents cited
 - VII ☐ Certain defects in the international application
 - VIII ☐ Certain observations on the international application

Date of submission of the demand 29.06.2004	Date of completion of this report 22.03.2005
Name and mailing address of the IPEA	Authorized officer:

Form PCT/IPEA/409 (title sheet) (January 2004)



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INTERNATIONAL PRELIMINARY
EXAMINATION REPORT

International application No. PCT/EP 03/50882

1. Basis of the report

1. This report has been drawn up on the basis of the following elements *(the replacement sheets received by the receiving office in response to an invitation according to Article 14 are considered in the present report as "originally filed" and are not annexed to the report as they contain no amendments (Rules 70.16 and 70.17).)*:

Description, pages:

1-10 as originally filed

Claims, No.:

1-12 received on 03.12.2004 with the letter of 02.12.2004

Drawings, sheets:

1/6-6/6 as originally filed

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

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INTERNATIONAL PRELIMINARY
EXAMINATION REPORT

International application No. PCT/EP 03/50882

5. ☐ This report has been written disregarding (some of) the amendments, which were considered as going beyond the description of the invention, as filed, as is indicated below (Rule 70.2(c)):

(All replacement sheets comprising amendments of this nature should be indicated in point 1 and attached to this report).

6. Additional observations, if necessary:

III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application,

☒ claims Nos. 9, 10

because:

☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):

☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 9, 10 are so unclear that no meaningful opinion could be formed (*specify*):

see separate sheet

☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

☐ no international search report has been established for said claims Nos.

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

☐ the written form has not been furnished or does not comply with the standard.

☐ the computer readable form has not been furnished or does not comply with the standard.

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty	Yes:	Claims	1-8,11,12
	No:	Claims	
Inventive Step	Yes:	Claims	1-8,11,12
	No:	Claims	

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Industrial Applicability

Yes: Claims
No: Claims

1-8,11,12

**INTERNATIONAL PRELIMINARY
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2. Citations and explanations

see separate sheet

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EXAMINATION REPORT - SEPARATE SHEET

International application No. PCT/EP 03/50882

In the matter of point III**Non-establishment of opinion as regards novelty, inventive step and industrial applicability**

The subject matter of claims 9 and 10 lacks clarity since, in the case of a stack of plates, such as that given by way of example in figure 5, no structural imperfection can be defined (cf. figures 1, 5), only surface imperfections being presented.

This is because, adopting the respective definitions of structural and surface imperfections given at the end of page 5 (in connection with the insert shown in figure 1), it is not clearly apparent how structural imperfections can be defined for a stack of plates (cf. figure 5). Although it is clearly understood that, in the example of figure 1, surface polishing of thickness E_{01} (cf. figure 1) leads to a precursor of poor quality (since the structural imperfections lie within the thickness of the material), it is not clearly apparent how structural defects may be defined in the case of figure 5, when the surface polishing is carried out. Although the description mentions (on page 6, lines 11-13) such structural defects (in addition to the surface defects) as regards the stack shown in figure 5, their definition, which is directly tied to the innovative nature of the present application, is at the very least obscure.

Consequently, as regards claims 9 and 10, the first step of the first claim is devoid of meaning (no "structural imperfection" can be defined). The subject matter of these claims 9 and 10 is excluded from the present report.

In the matter of point V**Reasoned statement regarding novelty, inventive step and industrial applicability; citations and explanations in support of this statement****1. Reference is made to the following documents:**

D1: Applied Physics Letters, American Institute of Physics, New York, US (06-06-1994), 64(23), 3107-3109;

D2: Electronics Letters, IEE Stevenage, GB (10-12-1998), 34(25), 2409-2410;

D3: Applied Physics Letters, American Institute of Physics, New York, US (13-08-2001), 79(7), 904-906.

2. Claim 1 does not satisfy the clarity requirements, as required by Article 6 PCT in that the term "thick" used to characterize the initial grating 1 is a vague and ambiguous term, and leaves a doubt as to the meaning of the technical feature to which it refers.

Form PCT/Separate sheet/409 (sheet 1) (EPO-April 1997)

INTERNATIONAL PRELIMINARY
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International application No. PCT/EP 03/50882

Furthermore, it should be noted that the abstract and the description refer to a "thin" initial grating (in its letter in response, the Filing Company also envisages such a thin initial grating).

4. Note regarding the International Research Report:

The International Search Report issued within the context of the PCT indicates that documents **D1** and **D2** are classed within the X category as regards the subject matter of claims 1, 4-6, 11 and 12, and 1,9 (respectively). This classification is erroneous and results from a poor retranscription of the data as regards the search report issued beforehand as regards the priority document.

Documents **D1** and **D2** must be considered as being classified as "A" as regards said claims. The following argument justifies such a classification.

- 5.1 Document **D3** seems to be the closest to the subject matter of the claims. It describes a method of producing a nonlinear optical grating similar to that of the first claim, with the exception of the step of determining the thickness having structural imperfections. The problem with the growth defects in the grating is raised (see figure 2 and second paragraph, page 905, right-hand column) and several hypotheses are presented as regards their origins. These hypotheses are all connected with the quality of the precursor, but none of the envisaged tracks (lithographic defects, ovality defects, contamination) results in the determination, and then the elimination, of the structural imperfections.
- 5.2 Document **D1** describes (cf. figure 1) a method of producing a nonlinear optical grating based on an initial nonlinear optical grating (cf. figures 2(a) and 2(b)). **D1** explicitly describes step 2 (cf. page 3108, left-hand column, penultimate sentence = passage A) and step 4 (cf. figure 1 and page 3109, left-hand column, second paragraph). The second step for determining the thickness of the upper part that includes structural imperfections is not present in **D1**. The optional polishing step carried out **D1** (cf. passage A) seems to be limited to the elimination of the surface defects and does not mention the detection of structural defects.
- 5.3 Document **D2** provides teachings similar to **D1** and, here again, mentions a polishing step (cf. second sentence, right-hand column, page 2409) without providing further details.

Form PCT/Separate sheet/409 (sheet 2) (EPO-April 1997)

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International application No. PCT/EP 03/50882

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- 5.4 No combination of the documents of the prior art would make it possible to obtain a method according to the first claim.

Form PCT/Separate sheet/409 (sheet 3) (EPO-April 1997)

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